GRAYSWOOD

"LISTENING IN."

WIRELESS STUDENTS AT GRAYSWOOD SCHOOL.

ALL EUROPE IN A CLASS-ROOM.

The Village School of Grayswood, near Haslemere, has achieved considerable distinction, inasmuch as it is, we believe, the only elementary school in the country where wireless telegraphy is a definite subject of the school curriculum. In these days of the wireless boom, when we have visions of aerials spouting up in everyone's back garden, when we see photographs in the daily papers of even dogs listening to their master's voice, and when we hear of wireless sets installed in top hats and pocket books, it may be interesting to point out that at Grayswood School wireless has been a subject of study for the past two years. In the old days the world of the country child was practically bounded by its own neighbourhood, and even now there are many children who have never been a great distance from their homes. But the boys and girls of this School. nestling in the picturesque valley below the slopes of Hindhead, live in the wide, wide world. In other words, they possess a wireless station of their own. The children are manifesting much enthusiasm in the subject, and the installation provides almost all the school lessons with an added touch of novel interest.

The present writer recently spent an interesting afternoon with Mr. R. J. Hibberd, the headmaster of the School, whose knowledge of this subject is probably unrivalled in this district. Mr. Hibberd is justly proud of the aptitude and keenness of his pupils, and said that despite the sheltered position of the School, splendid results have been obtained from the wireless station. The Eiffel Tower time signals, which are taken each day, and the School clock adjusted accordingly, can be heard by the whole class of 56 children. Nauen, Coltana, Taranta, and Malta have been picked up in great strength, and Lenfield has been received "hot and strong," being only 40 miles distant. Mr. Hibberd declared that not only as a science lesson has wireless proved of great value, but also in the teaching of physical geography. Weather reports are taken, and decoded by him, and the information gained used in explaining climatic conditions, and weather phenomena existing in Europe, and the necessity of gaining speedy weather reports. "When the pupils improve in knowledge, he added, "the calculation of wave lengths etc., will be introduced in the mathematics lessons. Only by experience can one fully realise what a real value wireless can be in a School. It commands the pupils keenest interest, and the educational value cannot be over-estimated."

Mr. Hibberd, to whom the introduction of wireless as an elementary school subject is due, has for many years been interested in the subject. He was trained for the teaching profession at St. Luke's University College, Exeter, and before the war had given a special study to wireless from the scientific standpoint. In June, 1915, when he was at Worplesdon, Mr. Hibberd joined the wireless section of the Royal Flying Corps, and after finishing his course was sent to the Central Flying School to give instruction to officers. Subsequently he went to France, where he was wounded by a shrapnel bullet, just above the heart, and, returning to England, was granted a commission and for a time held the appointment of lecturer at the Experimental School of Wireless Telegraphy at Farnborough. There he was one of the first to carry out experiments in wireless telephony, and results were obtained to which considerable importance was attached by the authorities. Later he went to the East, and served in Palestine, where he was in command of the wireless in the famous 113th Squadron—the only Squadron in the history of aviation which has achieved 104¾ hours continuous flying. Mr. Hibberd was mentioned in despatches for his wireless work, and for gallant and distinguished services in the field, and he remained in the East till the end of the war.

It was the fact that Mr. Hibberd possessed a wireless set that created curiosity and interest among his pupils at Grayswood School—to which he came in 1920—and he therefore decided to introduce the subject into the school curriculum. This appeared to be rather a difficult matter, owing to the lack of scientific knowledge among the children, and the necessity of imparting instruction in a very non-technical manner. These difficulties were, however, overcome. The course began by teaching the fundamental principles of electricity and magnetism, and as often as possible its relation to wireless was introduced and emphasised in regard to its functions in this respect. In the meantime the upper class, consisting chiefly of Boy Scouts and Girl Guides, were busy learning the Morse Code. By the end of the first term surprising results were obtained, and it became possible to commence on real wireless work during the second term.

A single wire aerial, 100 feet in length, was fixed from a tall oaktree to one of the school chimneys, and to it was joined the "lead in," which is connected with the instruments in the School. These consist of a three-valve receiver and amplifier connected to a piece of apparatus called a "loud speaker," the whole instrument making one of the most up-to-date wireless stations in the country The three-valve receiver is what is termed a Burndept, and incorporates all the advances made in wireless telegraphy. Amongst a number of coils and switches can be seen what appear to be three ordinary electric lamps. They are more than this, however; in fact, they may well be termed the "Aladdin's" Lamps of Wireless, for it is by means of these that music and speech can be received. In technical language they are termed thermionic valves, and they are the invention of an Englishman, Professor Fleming. They are so constructed that they produce wireless waves, detect incoming wireless waves, and magnify them when detected. The waves actually pass through these wonderful lamps, which are of special design. The vacuum of the lamp is much higher than that of ordinary electric lamps. The filament portion is surrounded by a metallic cylinder, and electrons fly off from the filament and attach themselves to the cylinder owing to the attractive high power batteries to which it is connected. The larger the number of electrons which fly off the greater the magnification of the signals. As already stated, there are three of these valves in the instrument used. Consequently, when the incoming weak signals impinge on the aerial they are magnified by the first valve, and the resultant wave is magnified still more by the second valve, whilst the third valve makes it still more powerful. In fact the apparatus used in the School is capable of magnifying signals no less than 300 times greater than when they were "picked up" on the aerial. It often happens that speech "comes in" actually louder than when it is spoken, so that it has to be weakened to make it clear. Speech from Croydon Aerodrome is always received as loudly as this. One can therefore easily appreciate the fact that the children can sit comfortably in their desks and by means of the "loud speaker" listen to music from Paris or Berlin.

Upon the visit of the present writer to the School he found a large class of nearly sixty children listening intently for the Eiffel Tower time signals, which were heard distinctly all over the room by means of the "loud speaker." The sound is not unlike a gramophone, but, of course, the apparatus is something far different and something much bigger than that. Mr. Hibberd claims that by this instrument messages can be received from a wide area representing about half the world. Not only that, but speech and music can be easily "picked up," and quite recently the children listened to selections from famous composers which were being played by an orchestra at Konigs Wasterhausen, in Germany. A recent description of the activities of the School in the study of wireless may be quoted.' 'The boys moved about amidst a collection of instruments, switches, vulcanite handles, coils, and all the fascinating apparatus associated with wireless. And very happy they were, too, with this practical form of experimenting. One boy with a pair of telephones to his ears was waiting for the time signals from Paris, 350 miles away. Another boy was listening for the weather report from Poldhu. 'See if you can detect any thunderstorms,' said the schoolmaster, as a youth with the magic of wireless delved into the secrets of the atmosphere many hundreds of miles away. The weather reports were used in connection with physical geography; the detection of thunderstorms played an important part in the science lesson; and the calculation of wireless wave lengths provided novelty in arithmetic; and so on throughout the school work the wireless station played a useful part in making school hours fly."

On the occasion of our visit to the School, not only the time signals and tape prices from Paris were received, but also a musical programme, and everything came in beautifully clear. The tone was much more pure than ordinary line telephony. We afterwards went up to Mr. Hibberd's house, where he has a complete wireless set of his own manufacture.

A second visit was arranged, and upon that occasion we had the pleasure of listening to a concert at The Hague, in Holland, and songs, violin solos, pianoforte selections, and even the speech of the promoter, came through with remarkable clearness. Mr. Hibberd has devised a special arrangement which we think must be unique. While sitting down to tea he can control his wireless station upstairs in such a way that those in the house can enjoy music from Paris without the need of going near the apparatus. Moreover, the sound is so loud that the wireless telephones are unnecessary.

Mr. Hibberd, who is a member of the somewhat exclusive Wireless Society of London, is in much request as an instructor in wireless. He has lectured both in the Technical Institute at Wimbledon and before the Wireless Society of Guildford, and during last weekend he left for Holland, where, on Sunday afternoon, at the radio wireless station at The Hague, he "broadcasted" a lecture on "The Educational Possibilities of Wireless." It is estimated that Mr. Hibberd had an English audience of at least 10,000 people who were "listening in" for his lecture, which was delivered on a wave length of 1,030 metres. He considers that wireless should form an essential subject in all types of schools. Distance has been annihilated by wireless telephony, and Mr. Hibberd predicts that the time will come when a number of schools scattered over a wide area will receive lectures from one professor speaking into a radio telephone transmitter at London University.

A motor-punt on the Yare (Norfolk) is fitted with wireless.

A SALISBURY BROADCASTER.

A short address on the activities of th Schools Radio Society, of which he was th founder, was broadcasted from the Londo Station last week by Mr. J. R. Hibberd, o Haslemere, and an old Sarumite.

Mr. Hibberd broadcasted the first lectur ever radiated in Europe, when he lectured fro the Hague, Holland, on the "Possibilities o Wireless in Schools." This was three year ago, and long before British broadcastin commenced. Some of the ideas which he pu forward at that time were ridiculed by many but have since been more than fully realised Mr. Hibberd's interest in the movement i shown by the fact that he is Honorary Secre tary of the Schools Radio Society, a member o the council of Radio Society of Great Britain and Wireless Officer in the Royal Air Forc Reserve.